

# **Resource efficiency: cut costs in plastics processing**

**Workbook 2: managing resource efficiency**

# Workshop objectives

- To provide tools for identifying, prioritising and managing potential projects
- To show that resource efficiency and waste minimisation are good business and good for the business

**Waste is anything that does not add value to the product**

# Business pressures for resource efficiency

- Waste costs real money
- The true cost of waste is hidden
- Resource efficiency is good business
- Legislation and the legal consequences
- Our reputation and customer pressure

# Key steps

- Step 1: recognising the true cost of waste and making a commitment to action
- Step 2: collecting better resource data
- Step 3: analysing resource data
- Step 4: preparing an action plan
- Step 5: implementing the plan
- Step 6: monitoring, reviewing and providing feedback

**A systematic approach tailored to company priorities**

# What are the barriers?

- Belief that resource efficiency only applies to large companies
- Failure to understand that resource efficiency is a real and large business issue
- Lack of understanding of the benefits
- Lack of time due to day-to-day pressures and lack of staff resources
- ‘Another management initiative’

# Words for waste

- Conveyor loss, customer returns ...
  - Defects, dirty solvent, dregs, dross, dust ...
  - Obsolete stock, offcuts, out-of-spec, overfill ...
  - Reel ends, regrind, rejects, rework, rubbish ...
  - Scrap, second quality, sprues, sweepings ...
  - Usage allowance, usage variance ...
  - Workaway, yield loss ...
- + more that are being invented all the time**

# A project approach

- Gather the available information
- Identify the opportunities and establish the priorities
- Plan the first projects
- Manage and complete the first projects
- Measure the improvements and savings
- Report the successes
- Market the process
- Start again

# Scoring system for an efficiency index

Score	Scope for improvement
Less than 15	Considerable scope for improvements that could help reduce waste costs significantly and thus increase profits.
Between 16 and 30	Although progress has been made, the true cost of waste could be much higher than you think. Still some scope for improvement.
More than 30	Improvements may be hard to identify, but are still worth looking for and they could produce some unexpected benefits. Find out what you are doing well and incorporate it into standard working practices.



# Areas for which information is needed

- Production
- Sales
- Raw materials
- Ancillary materials
- Packaging for materials and products
- Utilities
- Solid wastes
- Liquid wastes and effluent
- Emissions to atmosphere

# Polymer costs

Calculate:

- Polymer use
- Cost of polymer waste
- Process yield
- Cost of waste disposal via skips

# Calculating yields

Mass balance yield (MBY)

$$= \frac{\text{Weight of good production}}{\text{Weight of virgin material used}}$$

Process yield

$$= \frac{\text{Weight of good production}}{\text{Weight of total material used (virgin + rework)}}$$

Process yield measures how much is produced right first time

# Calculating the total cost of waste

Cost of waste = MBY cost + Process yield cost + Others

Where:

$$\text{MBY cost} = \frac{(100 - \text{MBY}) \times \text{cost of materials}}{100}$$

$$\text{Process yield cost} = \frac{(100 - \text{process yield}) \times \text{cost of processing}}{100}$$

Others = Stock losses, cleaning materials, skip hire, disposal charges, etc

## Energy

- Energy costs can be reduced by 10 - 20% through no-cost and low-cost actions
- Carry out an energy audit; available FREE from Action Energy

## Water

- Reducing water use reduces supply and disposal costs
- Carry out a water audit

## Packaging

- Work with suppliers and customers to reduce costs
- Inefficient use of packaging increases costs

**Contact the Environment and Energy Helpline  
on 0800 585794 for free advice**

# Opportunity checklist

Look at:

- Incoming materials
- Stores (raw materials, parts, final products)
- Production
- Support services
- Energy
- Water
- Other

# Walk around survey

Opportunities for saving money: major sources of waste				
Name:		Date:		Sheet: of
Process description:				
Process or activity	Type of waste	Estimated amount of waste produced per week/month/year	Estimated cost including disposal, raw material, purchase costs, utilities, added value per week/month/year	Current waste reduction activities
<b>Net annual cost</b>				

# Potential opportunities

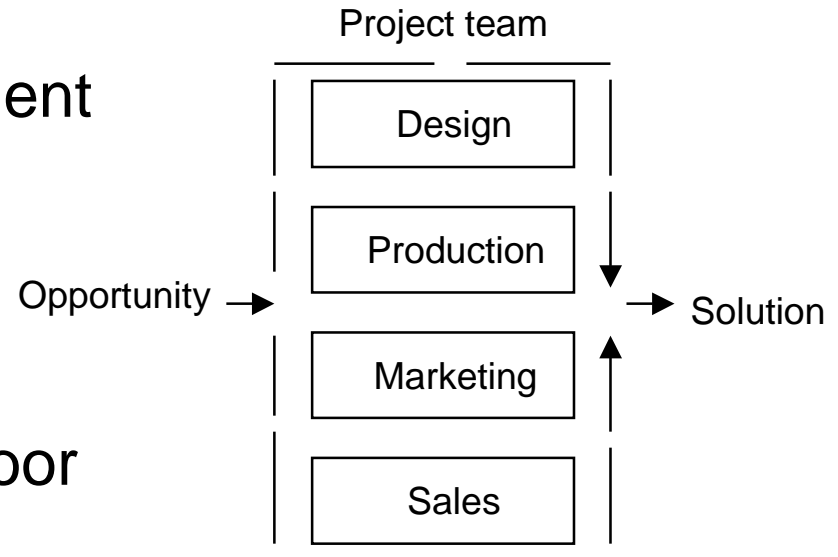
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# Project management

Team members:

- Design/product development
- Sales
- Accounts
- Manufacturing/production management and shop-floor representation
- Environmental/waste management
- Procurement/purchasing



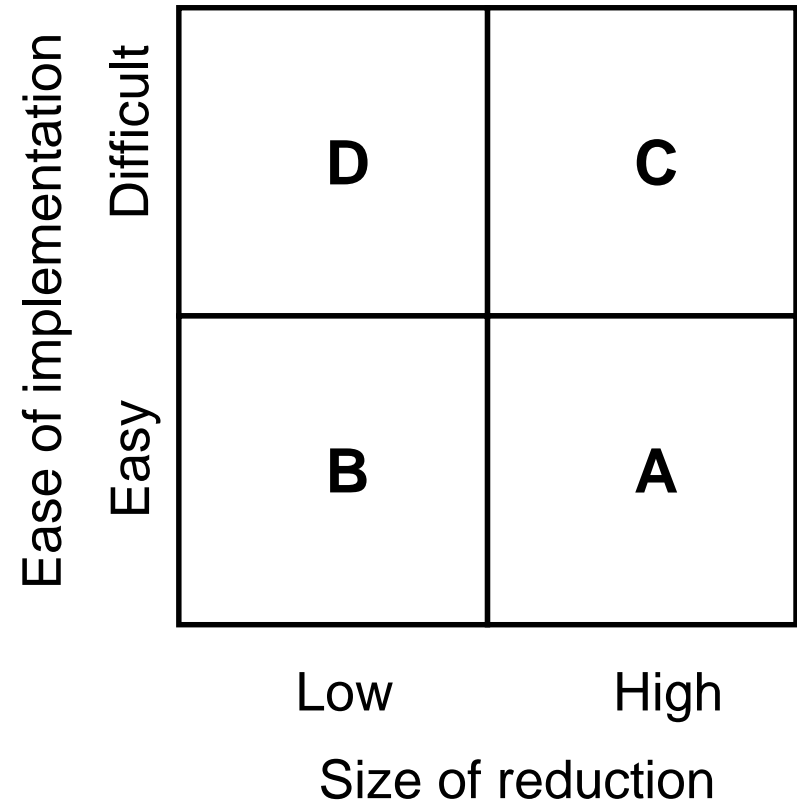
# Project champion

- Needs authority
- Must be able to make decisions without fear of being overruled later
- Must be free to innovate
- Must meet with team and report regularly

**Project teams need a leader or champion**

# Choosing projects

- Start with no-cost and low-cost measures to build confidence
- Involve the entire team in choosing the first projects
- Prioritise based on cost reduction and ease of implementation



# Reporting

Progress reporting:

- Regular, even if no progress
- To both the team and higher levels
- Initially two-monthly
- Increase interval after implementation

General reporting:

- Notice-boards, team briefings, newsletters, awards, annual report

# Assessment

- A major failing in project management is the lack of project assessment at the end of the project
- Assessment is NOT a search for the guilty!
- Assessment can be quick and easy but should always be realistic